

TERNARY CONTENT ADDRESSABLE MEMORY CELL

Abstract of the Disclosure

A ternary CAM cell includes a main memory cell, a mask memory cell,
5 a match line, a mask circuit, and a comparison circuit, where the main
memory cell is enabled to a wordline to store data, and the mask memory cell
enabled to a wordline to store mask data, data transferred to/from the main
memory cell is loaded on a bitline pair, and mask data transferred to a mask
memory cell is loaded on a mask bitline pair, comparison data is loaded on a
10 comparison signal line pair, while the mask circuit is coupled between the
match line and the mask memory cell to receive the comparison data, and the
comparison circuit is coupled between the mask circuit and a ground voltage
and includes a pair of transistors coupled to a comparison signal line pair and
a pair of match transistors coupled to the data of the main memory cell such
15 that, although the voltage level of the comparison data is lowered, a low
voltage operation characteristic is excellent, the capacitive loadings of
comparison signal lines are constantly maintained, and operation cycles
decrease in number.